

**YOU & MATHS** **Non-smoking mothers** Below is a table with the numbers of non-smoking mothers in one year at delivery in a small town called Pureville. Calculate the average age of the non-smoking mothers in Pureville. What is their median age?

<b>Age</b>	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
<b>Number</b>	7	8	9	10	12	3	2	5	4	5	2	4	2	0	1

The average age of the non-smoking mothers in Pureville is:

$$\frac{7 \cdot 21 + 8 \cdot 22 + 9 \cdot 23 + 10 \cdot 24 + 12 \cdot 25 + 3 \cdot 26 + 2 \cdot 27 + 5 \cdot 28 + 4 \cdot 29 + 5 \cdot 30 + 2 \cdot 31 + 4 \cdot 32 + 2 \cdot 33 + 35}{7 + 8 + 9 + 10 + 12 + 3 + 2 + 5 + 4 + 5 + 2 + 4 + 2 + 0 + 1} =$$

$$= \frac{1899}{74} \approx 25,7.$$

In order to calculate the median age of non-smoking mothers we have to compute the cumulative percentages. The total frequency is 74, then the median age is the semi-sum of the elements in positions 37 and 38 from the cumulative percentage column. These are both 25, so the median age of the non-smoking mothers is 25.

$X_i$	$F_i$	$F'_i$
21	7	7
22	8	15
23	9	24
24	10	34
25	12	46
26	3	49
27	2	51
28	5	56
29	4	60
30	5	65
31	2	67
32	4	71
33	2	73
34	0	73
35	1	74
<b>Total</b>	74	